ECHO

ECHO: An international e-journal concerning communication and communication disorders within and among the social, cultural and linguistically diverse populations, with an emphasis on those populations who are underserved.

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ECHO is a refereed journal that welcomes submissions concerning communication and communication disorders from practitioners, researchers, or scholars that comprise diverse racial and ethic backgrounds, as well as academic orientations.

ECHO welcomes submissions from professionals or scholars interested in communication breakdown and/or communication disorders in the context of the social, cultural, and linguistic diversity within and among countries around the world. ECHO is especially focused on those populations where diagnostic and intervention services are limited and/or are often provided services which are not culturally appropriate. It is expected that scholars in those areas could include, but not limited to, speech-language pathology, audiology, psychology, linguistics, and sociology."

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- Communication disorders in underserved or marginized populations around the world
- Service delivery frameworks for countries' minority populations, including those who are minorities for a variety of reasons including race, religion, or primary language spoken.
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- Evidence base practice research with culturally and linguistic diverse populations
- Provision of communication services in low income/resource countries
- Provision of communication services in middle income/resource countries
- Provision of communication services to immigrant and/or refuge populations
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Current Issue

ECHO

MODIFICATIONS OF LISTENERS' PERCEPTIONS OF PERSONS WHO STUTTER: A PRELIMINARY STUDY OF THE GENERAL ADULT PUBLIC

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ABSTRACT

This study sought to determine whether perceptions of members of the general adult public toward persons who stutter (PWS) could be modified after viewing a video documentary both educational and emotional in content. A 25-item semantic differential scale was used to measure 43 adult listeners' perceptions of PWS before and after viewing the video. Results revealed 8 of the 25 items on the semantic differential scale to have a statistically significant positive shift. Contrary to previous findings, this research suggests that some of listeners' perceptions of PWS are not resistant to change.

KEY WORDS: Stuttering, Public Perceptions, Modification of Attitudes

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MODIFICATIONS OF LISTENERS' PERCEPTIONS OF PERSONS WHO STUTTER: A PRELIMINARY STUDY OF THE GENERAL ADULT PUBLIC

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INTRODUCTION

Stuttering is a speech disorder that occurs across all cultures in which the normal flow of speech is frequently disrupted (Bloodstein & Bernstein Ratner, 2008). Einarsdóttir and Ingham (2009) note that different international systems for classifying diseases (e.g., American Psychiatric Association, 2000; International Statistical Classification of Diseases and Related Health Problems—10th Revision [ICD 10; World Health Organization (WHO), 2007]) emphasize that stuttering is a disorder of speech fluency. Stuttering affects over three million people in the United States, roughly one percent of the population (Bloodstein & Bernstein Ratner, 2008). Several types of disfluencies such as repetitions, prolongations, and blocks characterize the flow of stuttered speech. Unusual facial and body movements, referred to as secondary behaviors, may be associated with stuttering. The etiology of stuttering remains unknown and is a source of debate among professionals in the field of communication sciences and disorders. However, two main contributors to the disorder are thought to be environmental and genetic factors (Felsenfeld et al., 2000; Starkweather, 2002; Yairi & Ambrose, 2005).

Persons who stutter (PWS) often develop strong emotions toward and thought processes about their stuttering (Craig, Blumgart, & Tran, 2009). Viewed from a broader perspective, communication is essential for social interaction. Given this premise, stuttering can create barriers to normal social and psychological development, thereby raising risks of forming negative stereotypes of persons who stutter by those who do not. Allport (1954), in his classic definition of the term, noted that a stereotype is regarded as a generalization or an exaggerated belief about a person or group of persons and that stereotypes function to justify one's beliefs about a person or group of persons (p. 191). Stereotypes become problematic when they lead to prejudice against or are used to unfairly discriminate against a person or group. Thus, in the case of persons who stutter, prejudice would be exemplified by individuals believing a person who stutters is inferior, while discrimination might be seen in the form of denying employment because an individual stutters (Yaruss and Quesal, 2004).

While there is no empirical evidence that persons who stutter are the victims of prejudice, research does indicate the general non-stuttering population holds negative perceptions toward people who stutter. These negative perceptions can be found among all age groups---school-age to adult (Doody, Kalinowski, Armson, & Stuart,1993; Flynn & St. Louis, 2007; Frank, Jackson, Pimentel, & Greenwood, 2003); most cultures (Al-Khaledi et al. 2009; Bebout & Arthur, 1992; Mayo, Mayo, Jenkins, & Graves, 2004; Ming, Jing, Wen, & Van Borsel, 2001; de Britto Pereira, Rossi, & Van Borsel, 2008; St. Louis, 2005; Van Borsel, Verniers, & Bouvry, 1999); people who have never met a person who stutters (Craig, Tran, & Craig, 2003); and speech-language pathologists (Cooper & Cooper, 1985; 1996; Cooper & Rustin, 1985; Snyder, 2001). Moreover, persons who stutter have themselves been found to harbor negative opinions of people exhibiting chronic fluency failure (Kalinowski, Lerman, & Watt, 1987; Lass, Ruscello, Pannbacker, Schmitt, Middleton, & Schweppenheiser, 1995). While the reasons for these negative perceptions are not well defined, one possible explanation could be that listeners view persons who stutter as having emotional or psychological problems and the disorder of stuttering as having adverse social, academic, and vocational effects on the lives of PWS (Craig, Blumgart, & Tran, 2009; Zhang, Saltuklaroglu, Hough, & Kalinowski, 2009). For example, it has been reported that members of the general public believe that persons who stutter are: quiet, reticent, guarded, avoiding, introverted, passive, self-derogatory, anxious, tense, nervous, and afraid (Woods & Williams, 1976). By contrast, while the research literature suggests that persons who stutter on average are not quite as socially well adjusted as are typically fluent speakers, the bulk of the empirical findings indicate that there is little conclusive evidence of any specific kind of character structure or broad set of basic group personality traits that are typical of persons who stutter (Bloodstein & Bernstein Ratner, 2008, p. 209).

Another explanation for the negative views toward persons who stutter could be attributed to the general public's lack of knowledge about stuttering itself (e.g., its cause, nature, etc). For example, Boyle, Blood, and Blood (2009) examined the effects of the perceived cause of stuttering on perceptions of persons

who stutter. These investigators reported that two hundred and four university students who did not stutter rated vignettes which varied on describing a PWS with different causalities for stuttering (i.e., psychological, genetic, or unknown). Ratings differed significantly according to assigned causality. The vignette with the stuttering due to psychological causes was rated more negatively on 14 adjective pairs when compared to the ratings of vignettes with stuttering caused by either genetic or unknown causes. The authors also noted that there were no significant differences between ratings of the vignettes attributing stuttering to either genetic or unknown causes. Furthermore, neither familiarity with PWS nor the perceived curability of stuttering had any significant association to the ratings.

We should also not overlook the possibility that some people base their views of persons who stutter on images gathered from media portrayals of PWS rather than actual individuals who stutter. For example, Johnson (2008) stated that the portrayals of characters who stutter on film and television have often pandered to the public's basic ideas of stuttering and thus have been stereotypical, unrealistic, and at times even derogatory. Likewise, Jones, Mitchell, and Mayo (2008) in their study of films that portrayed persons who stutter, found no depictions of PWS as heroic, competent, or emotionally stable.

The question arises, 'Can listeners' negative perceptions of persons who stutter be modified?' Informational videos have been shown to be useful in effecting behavioral change in areas of health such as smoking cessation (McBride et al. 2003; Orr et al. 2001) and reduction of incidence of sexually transmitted disease (Warner, et al. 2008). However, in the area of stuttering, some studies have highlighted the difficulty of changing negative perceptions of PWS through use of video media. For example, McGee, Kalinowski, and Stuart (1996) asked high school students to complete a 25-item semantic differential scale (Woods & Williams, 1976) for either a hypothetical "normal high school male" or a "high school male who stutters." The students' responses were uniformly negative toward the male who stuttered and remained unchanged even after watching a poignant and emotional video documentary Voices to Remember (Bondarenko, 1992a) in which stuttering by adults was portrayed. In fact, viewer's perceptions became more negative after watching the video. The results of this study, according to the authors, suggest that watching the video was insufficient in changing viewers' attitudes about PWS. However, others (Hughes, 2008) have also posited that the video simply enhanced the negative stereotypes that the participants already possessed.
Elsewhere, Snyder (2001) investigated how attitudes toward PWS may be changed as a result of learning about stuttering via emotional and educational videotapes. Twenty-one speech-language pathology graduate students were administered the 'Clinician's Attitude Toward Stuttering' (CATS; Cooper, 1975) inventory prior to and after watching an emotionally-charged video (Speaking of Courage, Bondarenko, 1992b) that documented the life of a young girl who stutters. Another group of thirty-four graduate SLP students completed the CATS Inventory prior to and after watching a videotape (Effects of Altered Auditory Feedback on Stuttering Frequency at Normal and Fast Speaking Rates, Keith & Kuhn, 1996) that depicted rapid improvement of stuttering in a young man by means of electronic therapeutic techniques (i.e., prototypes of the SpeechEasy device). A comparison of the two conditions indicated that few, if any changes, in speech-language pathology students' attitudes toward stuttering and PWS resulted from viewing the videotapes.

In summary, the studies of McGee et al. (1996) and Snyder (2001) suggest that efforts to alter negative listener perceptions of PWS may not yield success. However, it should be noted that neither study, presumably designed to actively change negative perceptions of PWS, utilized participants who would actually be considered members of the general adult public. Specifically, McGee et al. (1996) employed high school students and Snyder (2001) reported on speech-language pathology graduate students. Additionally, McGee et al's. (1996) methodology of asking non-stutterers to make statements about or rate a hypothetical person who stutters is problematic. In our opinion, the latter approach increased the likelihood that non-stutterers asked to make such judgments might use stereotypic images of a PWS rather than base their opinions on an actual person who stutters. Finally, Snyder (2001) used separate videos of two different persons who stutter, one to depict the emotional impact of stuttering and the other to educate viewers about stuttering and found no changes in the negative opinions of PWS among his viewers. An alternative approach such as showing a single video of a PWS which provides viewers with factual educational information about the disorder (i.e., its nature and treatment) and depictions of the emotional impact of stuttering on a PWS and his/her family might allow viewers to focus their attention on an actual PWS and learn more about that individual and the disorder of stuttering.

The literature is clear that people who do not stutter hold negative perceptions of PWS. However, to our knowledge, no investigations have sought to determine whether the perceptions of members of the general adult public toward PWS can be modified. Thus, the purpose of this preliminary study was to determine whether perceptions of members of the general adult public toward persons who stutter can be modified after viewing a video documentary both educational and emotional in content.

METHOD

Participants

Forty-three adults residing in the Greensboro-High Point-Winston-Salem (NC) metropolitan area participated in this study. Participants consisted of twenty-nine females and fifteen males. Participants were recruited through printed announcements about the study posted in community centers, supermarket bulletin boards, and other places of commerce. The participants were required to complete a questionnaire which provided

demographic information (e.g., sex, age, education, employment status, etc.) as well as their experience with stuttering.

The average age of the participants was 31.1 years (range = 20-65 years). Their average level of education was 14.0 years (range = 12-18 years). Occupational categories of participants included labor (construction, custodial), skilled trade (electrician, plumber), technical (computer repair), and professional (educator, engineer). Exclusion factors for the participants included the following: 1) a speech-language pathologist or audiologist, 2) currently enrolled as an undergraduate, graduate or professional student in college, or 3) a person who stutters. All participants reported knowing or having met at least one person who stutters over the course of their lives.

MATERIALS

Semantic Differential Scale

The attitudes of subjects toward persons who stutter were examined with the 25-item semantic differential scale (see Table 1) developed by Woods and Williams (1976). This bipolar Likert scale was composed of words previously listed by speech-language pathologists to be descriptive of persons who stutter and their antonym counterparts (Woods & Williams, 1976) and has been validated and used extensively in stuttering research (Betz, Blood, & Blood, 2008; Boyle, Blood & Blood, 2009; Collins & Blood, 1990; McGee, Kalinowski, & Stuart, 1996). Participants were asked to evaluate the speaker by circling the number on the scale which identified the traits of a person who stutters. Each set of contrasting adjectives was rated between "extremely" to "neutral" in agreement with that adjective. Ordinal number values were assigned to the seven point semantic differential scale (1 = Extremely "left adjective", 2 = Quite "left adjective", 3 = Fairly "left adjective", 4 = Neutral, 5 = Fairly "right adjective", 6 = Quite "right adjective", 7 = Extremely "right adjective"). In contrasting adjectives "friendly" and "unfriendly", the rating scale would look as follows: 1 = "Extremely friendly"… 4 = "Neutral"… 7 = "Extremely unfriendly." Definitions of adjectives used in this scale were left to the discretion of each participant.

Table 1. 25-item semantic differential scale items used in the present study.

Open-Guarded
Nervous-Calm
Cooperative-Uncooperative
Shy-Bold
Friendly-Unfriendly
Self-Conscious-Self-Assured
Tense-Relaxed
Sensitive-Insensitive
Anxious-Composed
Pleasant-Unpleasant
Withdrawn-Outgoing
Quiet-Loud
Intelligent-Dull
Talkative-Reticent
Avoiding-Approaching
Fearful-Fearless
Aggressive-Passive
Afraid-Confident
Introverted-Extroverted
Daring-Hesitant
Secure-Insecure
Emotional-Bland
Perfectionistic-Careless
Bragging-Self-Derogatory
Inflexible-Flexible

Video

The participants viewed an edited version of the documentary Speaking of Courage (Bondarenko, 1992b). The main character of this video was a young girl who stuttered throughout childhood. The researchers edited the original sixty-minute video down to twenty minutes in order to capture scenes and narration pertaining to the main character. The researchers identified those segments from the video that portrayed factual content on stuttering (e.g., etiology and treatment of stuttering) along with the emotional aspect of the disorder that the character and her family experienced (e.g., teasing, fear, parental concerns). The goal of the editing process was to produce a final video that was equally balanced in terms of factual and emotional content. Thus, the video was edited so that ten minutes contained factual information on stuttering and ten minutes depicted the emotional impact of the disorder. The authors and ten graduate students

viewed two versions of the video and rated them for content balance, clarity, and continuity. The same raters also judged the main character's overall stuttering severity to be moderate. The final edited video viewed by the participants showed the main character exhibiting the following primary stuttering behaviors: syllable repetitions, sound prolongations, and blocks. Her secondary stuttering behaviors consisted of jaw jerks and head movements. The version of the video with the highest rating was selected for use in the study. The video was transferred to DVD using a DVD and VCR Recorder (LITEON, Model LVC-9006).

Procedure

The study was conducted in classrooms at two local community centers. Baseline data for this study was acquired by having the participants complete the semantic differential scale prior to viewing the video. The instructions given to the participants prior to viewing the video were as follows:

"We would like you to use this checklist form to make judgments about a typical person who stutters. Please read each adjective pair on the checklist and circle the number that corresponds to your judgments about a typical person who stutters."

The video play equipment was brought into the room immediately after the participants completed the first semantic differential scale. The participants viewed the video on a twenty-seven inch television (Zenith, Model SR7768S) in dim lighting and with ample volume sufficient to project throughout the entire classroom. Then, participants were asked to complete an identical semantic differential scale immediately after viewing the video so information absorbed from the film would be accurately reflected. In order to gauge potential shifts in attitude, the researchers did not indicate to the participants that a follow-up survey would be administered. The participants were advised to be as honest as possible when completing both the pre- and post-surveys and were assured that no personal information was to be used. Prior to distribution of the surveys, the researchers numbered pre- and post-surveys accordingly so that each participant's responses could be accurately measured and recorded.

Data from both the pre- and post-video surveys were analyzed using a one-way analysis of variance (ANOVA). This statistical tool was chosen in order to report participants' attitudes for each of the semantic differential items.

RESULTS

Several significant changes in attitudes toward persons who stutter were noted in this study. Of the twenty-five semantic differential scale items, eight were found to have significant positive attitude shifts after viewing the video (see Table 2). Prior to viewing the video, the participants' mean responses to the cooperative-uncooperative, pleasant-unpleasant, intelligent-dull, and emotional-bland adjective pairs all shifted positively from "fairly" to "quite" following the observation of the video. The participants' mean responses to the open-guarded, shy-bold, and daring-hesitant adjective pairs positively shifted from "fairly guarded" to "neutral", "quite shy" to "fairly shy", and "neutral" to "fairly daring" respectively. The responses to the inflexible-flexible adjective pair showed a significant shift between pre- and post- means; however, the responses remained in the "neutral" range.

Table 2. Significant shifts in listeners' attitudes toward stuttering after viewing Speaking of Courage (1992).

Adjectives	Pre-Video	Post-Video	F-Value	P-Value (<.05=Significance)
Open-Guarded	5.12 "Fairly Guarded"	4.37 "Neutral"	4.5	.040
Cooperative-Uncooperative	3.65 "Fairly Cooperative"	2.60 "Quite Cooperative"	19.8	.000
Shy-Bold	2.26 "Quite Shy"	3.02 "Fairly Shy"	7.7	.008
Pleasant-Unpleasant	3.33 "Fairly Pleasant"	2.47 "Quite Pleasant"	26.14	.000
Intelligent-Dull	3.21 "Fairly Intelligent"	2.35 "Quite Intelligent"	24.24	.000
Daring-Hesitant	4.61 "Neutral"	3.71 "Fairly Daring"	10.63	.002
Emotional-Bland	3.38 "Fairly Emotional"	2.64 "Quite Emotional"	16.72	.000
Inflexible-Flexible	4.21 "Neutral"	4.79 "Neutral"	7.57	.004

Seventeen of the twenty-five adjective pairs yielded no significant positive or negative shifts. These pairs included Nervous-Calm, Friendly-Unfriendly, Self-Conscious-Self-Assured, Tense-Relaxed, Sensitive-Insensitive, Anxious-Composed, Withdrawn-Outgoing, Quiet-Loud, Talkative-Reserved, Avoiding-Approaching, Fearful-Fearless, Aggressive-Passive, Afraid-Confident, Introverted-Extroverted, Secure-Insecure, Perfectionistic-Careless, and Bragging-Self-Derogatory.

DISCUSSION

After viewing the video, results indicated eight positive shifts in participants' attitudes toward people who stutter that were considered to be statistically significant. It is important to note that unlike the findings of McGee, Kalinowski, and Stuart (1996), no significant negative shifts in attitude were found upon completion of the present study. The documentary utilized in this study chronicled one young female who stuttered moderately and her life experiences with the disorder. Following the video, the participants' view of PWS shifted significantly from shy to bold, guarded to open, and from hesitant to daring. These positive shifts in attitude might be attributable to the main character's determination and outgoing personality despite her stuttering as evidenced by volunteering to give a public speech at her school. McGee et al (1996) used the same 25-item semantic differential scale to measure changes in high school listener perceptions of PWS and found that following a different documentary, the participants viewed PWS to be more inflexible. The findings from the current study indicate a shift in the listeners' attitudes from inflexible to flexible and from uncooperative to cooperative. The main character's willingness to participate in school activities, speech therapy, and taking part in the documentary itself may have contributed to these changes in the listeners' perception of someone who stutters. Throughout the documentary it was evident that the main character displayed no cognitive deficits or lack of intelligence. The shift from dull to intelligent in the participants' perceptions of PWS may reflect their belief that stuttering is not directly correlated with intelligence. Participants in this study viewed PWS more positively with regards to being pleasant and emotional than previously thought. These shifts in attitude may be due to the main character's struggle with and her ultimate acceptance of being a person who stutters.

As noted above, no significant negative shifts in participants' attitudes toward people who stutter were found. The overall tone of the edited version of the documentary Speaking of Courage (Bondarenko, 1992b) was a positive one. Although the main character's symptoms of stuttering persisted, the young girl eventually accepted the fact that she stutters and considered it to be a unique element of her personality. The participants possibly viewed this as a triumph over adversity for the main character.
Previous findings by Snyder (2001) and McGee et al (1996) suggest that negative perceptions and stereotypes of people who stutter are stable and relatively resistant to change. Snyder (2001) also noted that studies using similar methodologies have yet to and are unlikely to produce significant improvements in negative perceptions towards people who stutter. A study involving high school students' perceptions of PWS using similar methodologies to this study found that negative perceptions of PWS became more negative after viewing a documentary (McGee et. al, 1996). In contrast to previous findings, our research suggests that listeners' perceptions of people who stutter are not resistant to change and are susceptible to significant positive shifts in attitudes. However, the fact that less than half of the 25 adjective items shifted suggests that more work needs to be done in educating the general public. Possible explanations for these different outcomes may be attributed to differences in types of surveys used (semantic differential scale in the present study), video stimuli (factual information about stuttering and depiction of the emotional impact of the disorder), age and gender of the person portrayed in the video (school age and female), population of viewers (adult members of the general public), and time given to complete the post-video viewing survey (immediately versus a 24-72-hour delay).

Limitations of the Current Study

In contrast to Snyder (2001), who required that the post survey be completed 24-72 hours after viewing the video stimuli, this study required the post surveys to be completed immediately following the presentation of the video. Snyder (2001) stated that the "time requirement was designed to enhance objective reflection on the documentaries, while still keeping the videos' content novel and mentally accessible." For the present study, it was decided that more accurate potential attitude shifts could be obtained by having the participants complete the post survey while the content matter was still "fresh" in their minds. It could be argued that this particular methodology did not allow the participants adequate time to reflect on the content of the video.

SUMMARY AND CONCLUSION

In conclusion, the findings of this study suggest that some negative perceptions/stereotypes of people who stutter held by the general adult population who do not stutter can be positively modified by video stimuli depicting an actual PWS and containing educational and emotional information regarding stuttering. Future research should seek to identify those variables that continue to be barriers to greater positive change in listener perceptions of PWS. Additionally, future researchers could seek to determine how long people retain positive perceptions of PWS after exposure to educational material similar to that used in the present study. Subsequent investigations might seek to replicate this study and target a larger more diverse population of participants to determine if they possess negative perceptions/ stereotypes of people who stutter and if those perceptions can be modified. Finally, with regard to practical application, videos pertaining to the emotional and factual aspects of stuttering could be essential viewing for students, teachers, speech-language pathologists, and persons who stutter. Such educational

methodologies as well as personal interactions with individuals who stutter might help people who do not stutter develop enough learned experiences to change the negative perceptions held by the public and provide a more encouraging outlook for those who live with stuttering.

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ECHO

SPEECH –LANGUAGE PATHOLOGISTS' PERCEIVED SUPPORTS AND BARRIERS TO ASSESS THE LANGUAGE SKILLS OF K-12 STUDENTS WHO ARE CULTURALLY AND LINGUISTICALLY DIVERSE

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ABSTRACT

Educational researchers have focused greatly on the perceptions, practices, and efficacy of preservice and inservice teachers. Much discussion has surrounded the issue of culturally competent practices among educators in K-12 classrooms. However, related educational professionals, such as school-based speech-language pathologists, have been left out of this very important dialogue. Similar to other educational professionals who serve children with special needs, school-based speech-language pathologists continue to face challenges of providing appropriate educational services to K-12 students from culturally and linguistically diverse backgrounds.

This paper shares research that focuses on school-based speech-language pathologists' perceptions about supports and barriers experienced when assessing the language skills of K-12 students who are bilingual, bicultural, and bidialectal. Results are based on responses to in-depth interviews. Implications for graduate programs of speech-language pathology, school districts, and the American Speech, Language and Hearing Association are shared.

KEY WORDS: Language assessments, cultural and linguistic diversity, perceptions of support and barriers

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INTRODUCTION

The Challenge of Differential Assessment

Speech-language pathologists are similar to other educational professionals, in that they continue to face challenges of providing appropriate educational services to K-12 students from culturally and linguistically diverse backgrounds. These professionals are increasingly accountable for providing culturally competent services (ASHA, 1999; Caesar & Kohler, 2007; IDEA, 2004). Specifically, speech-language pathologists are charged with identifying students in need of speech-language services, regardless of their cultural and/or linguistic background. They are challenged further to utilize assessment practices that will reliably distinguish a communication disorder from a communication difference among students who are from culturally and linguistically diverse backgrounds (Battle, 2002; Brice, 2002; Caesar & Williams, 2002; Kritikos, 2003; Langdon, 2002; Langdon & Cheng, 2002).

Teachers rely on and collaborate extensively with school-based speech-language pathologists. Specifically, teachers co-teach with and refer students to these professionals. Consequently, there is a heavy reliance on speech-language pathologists for assessment results and recommendations regarding a student's communication skills. If speech-language pathologists are not culturally competent, serious problems can result in the areas of misdiagnosis and the subsequent provision of inappropriate services. Despite this reality, speech-language pathologists appear to have been left out of this very important dialogue. There is limited information available on the perceptions and actual practices of speech-language pathologists as compared to the body of information that currently exists on teachers' beliefs and practices, relative to their cultural competency (Caesar & Kohler, 2007; Kritikos, 2003).

Assessing Students from Culturally and Linguistically Diverse Backgrounds

Often, differentiating between a disability (or difficulty) because of acculturation and language learning is complex for teachers and school-based speech-language pathologists (Brice, 2001). Each has the challenging responsibility of providing services to English language learners; a challenge which is particularly difficult when these professionals are themselves monolingual and only speak English (Brice, 2001). It can result with an assumption of language disorder rather than language difference and subsequently propelling these students, in disproportionate numbers, toward special education and related services (Adger, Wolfram, Detwyler, & Harry, 1993; Burnette, 2000; Delpit, 1995).

In contrast to placing children without a disability into special education programs, some children with disabilities are not identified at all because of the difficulty of differentiating a disability from a cultural and linguistic difference (Burnette, 2000). Underidentification can occur when an evaluator makes the assumption that a child who belongs to a specific racial/ethnic group speaks the dialect (or language) connected with that group (Ortiz, 1997; Wilson, Wilson, & Coleman, 2000). Thus, differences revealed in the assessment may be attributed to dialect (or second language acquisition) rather than communication errors (Laing & Kamhi, 2003).

METHOD

In an effort to advance the discussion, this researcher sought to determine school-based speech-language pathologists' perceived supports and barriers with regards to assessing the language skills of K-12 students who are culturally and linguistically diverse. Specifically, the purpose of the study was to determine what speech-language pathologists (a) perceive as the supports needed to assess competently the language skills of students who are bilingual, bicultural, and bidialectal and (b) perceive as barriers to assessing the language skills of students who are bilingual, bicultural, and bidialectal.

PARTICIPANTS

The speech-language pathologists who participated in this study were recruited through use of mailing lists supplied by the directors of CSD graduate training programs, whose graduates largely serve two targeted Florida-based school districts. All potential participants were sent a brief questionnaire with a cover letter that explained the nature of the study and the protection of human subjects. The letter also stated that selected participants would be asked to answer questions on a follow up,

in-depth, semi-structured interview (Seidman, 1998). A stratified purposeful sampling technique (Patton, 1990) was used for data collection. The key criterion for selection of participants was the constitution of the speech-language pathologists' primary caseload (e.g., frequency of exposure to diverse children and adolescents). Participants were categorized, also, according to their license or certification status, race/ethnicity, and educational background (master's and/or Ph.D.), and years of professional experience.

RESULTS

Three hundred and ninety speech-language pathologists were mailed initial letters and questionnaires. Of these, 207 (53%) responded. Surprisingly, only 10 of these respondents indicated they worked exclusively and/or consistently with students who are bilingual, bicultural, and/or bidialectal. These 10 respondents were the only speech-language pathologists who qualified for the survey interview portion of the study. All of the interviewees identified themselves as females, and each had a master's degree in speech-language pathology, as well as certification (CCC-SLP) from the American Speech, Language and Hearing Association (ASHA). These professionals represented five different races/ethnicities, evenly: African American/Black (2), West Indian (2), Asian/Pacific Islander (2), Latina (2), and White (2). The two West Indian respondents were of Haitian descent and speak Haitian Creole in addition to standard American English. The two Asian respondents represented the Philippines and spoke Tagalog in addition to standard American English. The Latina respondents were bilingual with Spanish reported as their native or second language. One of the two African American respondents and the one of the two White respondents reported using American English as their primary language and Spanish as a 2nd language. American English was spoken almost exclusively by the other African American respondent and the other White respondent.

Data Analysis

The data collected from the participants were analyzed via member checks, description of researcher bias, and rich, thick description (Creswell, 1998; Creswell & Miller, 2000). The respondents' comments were audio recorded, then transcribed verbatim by a trained transcriptionist and coded by this researcher. In order to organize and analyze the verbatim transcripts of the respondents' experiences, themes in their spontaneous comments were identified and subsequently collapsed into smaller themes utilizing a modification of the Stevick-Colaizzi-Keen Method of Analysis of Phenomenological data (Moustakas, 1994). Themes that emerged were established through a consensus approach (Sanger, Moore-Brown, Montgomery, Rezac, & Keller, 2003).

Findings

Research Question 1: What do speech-language pathologists perceive as the supports needed to assess competently the language skills of students who are bilingual, bicultural, and bidialectal?

All 10 interviewees rated the *active recruitment of speech-language pathologists who are bilingual, bicultural, and bidialectal*, as well as *the need for more course work and more practicum experiences with diverse students*, as either very important or important at the preservice level. When asked what supports were needed, the following six themes emerged:

- Need for standardized tests in multiple languages and multicultural contexts
- Need more Bilingual speech-language pathologists
- Need more exposure to diverse students during clinical practicum experience
- Need more resources
- Need more research focus on multicultural speech-language issues
- Need ASHA requirement for certification in another language
- Need required continuing education units/credits specifically in multicultural issues

Each of these themes is described in greater detail below:

Need for standardized tests in multiple languages and in multicultural contexts. All 10 of the interviewees believed that having tests in multiple languages is of critical importance to the bilingual, bicultural, and bidialectal students they assessed and the field of speech-language pathology as a whole. Further, each of the interviewees acknowledged knowing that certain language tests existed in the Spanish language. While language tests exist in the Spanish language, eight of the speech-language pathologists interviewed stated that tests in other languages were primarily nonexistent and desperately needed.

However, four of the interviewees stated that while tests exist in the Spanish language, they are limited. They do not take into consideration the various within-group differences in the Spanish language and culture. Differences in vocabulary, for example, exist where one word in San Salvador may mean something very different in Puerto Rico.

Four respondees acknowledged that more tests are now taking into consideration dialectal variations of the English language when testing an area such as syntax.

However, one respondent spoke of a conflict between the allowances of such tests and the automatic assumption that all students of a race/ethnicity, particularly a student of color, use the same speech patterns.

> *"I assessed a white child who was coming from a low income (background). I knew the area he lived in and I heard his mother speak. I gave him the CELF-3 and I believe it's one of the syntax portions, where the hisself, herself, that portion, I can't remember what it is offhand. Well, he said hisself and many people were telling me to mark it wrong but I said I heard his mom say it. How can I mark it wrong? He's getting that at home, his community. Because, once I brought that up, then they didn't know what to do. Either*

I was going to mark it right or wrong. I marked it right because it's almost to me discriminatory any another way. Because he's White you have to mark it wrong." ***(Latina speech-language pathologist)***

Need more bilingual speech-language pathologists. A second theme that emerged from the survey was the need for more bilingual speech-language pathologists. Nine of the interviewees stated that a backlog of bilingual students, waiting to be assessed, was common because of the lack of accessible bilingual speech-language pathologists in their counties. These respondents also indicated that of the bilingual speech-language pathologists employed by the school districts, most of them were English/Spanish speakers only. This caused a dilemma for students who spoke a foreign language other than Spanish.

Need more exposure to diverse students during clinical practicum experience. When asked about their graduate school experiences, four of the respondees reported that they wanted their practica to include more experiences with a wide variety of students, particularly those from culturally and linguistically diverse backgrounds. They believed this experience would have better prepared them to provide speech and language services with this population.

Need more resources. Another theme that emerged was the need for more resources such as an easily accessible staffed clearinghouse. All of the respondents stated that a center, website with more than just articles, or a cross-county network of resources and available culturally and/or linguistically diverse speech-language pathologists would be beneficial.

Need more research focus on multicultural speech-language issues. Of the 10 interview respondents, three felt that more research is needed in the areas of assessment and treatment of students who are bilingual, bicultural, and bidialectal. Further, these speech-language pathologists reported the need to develop more materials and research-based practices in multicultural speech-language issues.

Need ASHA requirement for certification in a language other than English; Need continuing education units/credits specifically in multicultural issues. Two of the interview respondents believed that they were at a disadvantage because of their inability to speak another language. A bold proposal for preservice education, eight of these professionals felt that requiring certification in a language other than English and a specific number of continuing education units in multicultural speech-language issues would increase the knowledge base of speech-language pathologists. Culturally responsive practices would increase while the misidentification of culturally and linguistically diverse students as having a language disorder would decrease.

Research Question 2: What do speech-language pathologists perceive as barriers to assessing the language skills of bilingual/bicultural/bidialectal students?

Survey respondents most frequently reported the lack of availability of bilingual speech-language pathologists, lack of developmental norms and standardized assessment tools in languages other than English, and lack of availability of interpreters as barriers.

Like supports, perceived barriers were evident throughout the interview transcripts. In addition to the above bulleted perceived supports, the following five themes regarding barriers emerged:

- Limited coursework on multicultural speech-language issues at graduate level
- Existing coursework / professional development training must provide information that is more specific
- No protocol / systematic method in place
- Interpreters facilitate process in absence of a bilingual speech-language pathologist, but are not trained in test protocol
- Difficulty distinguishing a language difference from a language disorder

Limited coursework on multicultural speech-language issues at graduate level; Existing coursework / professional development training must provide information that is more specific. Eight of the respondents reported that they received a minute number of graduate-level credits in the area of multicultural speech-language issues.

They primarily believed that the graduate coursework and later inservice training taken only "glossed" over topics. These speech-language pathologists would have preferred information specific to various dialects, languages, and cultures. When asked if there was a content area that they would have liked either to receive training in or additional information about, one speech-language pathologist responded:

"…having a class on learning language development and maybe the top five other languages that are spoken, like Asian, Spanish, Arabic, you know, other languages that are predominantly spoken in the United States, really looking through the language development of other languages and the linguistics of that too, a linguistic program." ***(Latina speech-language pathologist)***

No protocol/systematic method in place. Added to the above theme was participants' belief that a specific protocol or systematic method on assessing students who are bilingual, bicultural, and bidialectal, be developed and implemented. Specifically, half (5) of these speech-language pathologists felt a step-by-step "how to" approach would be most beneficial to assist them with meeting the needs of the diverse student learners they serve.

Interpreters facilitate process in absence of a bilingual speech-language pathologist, but are not trained in test protocol. Each of the respondents reported that while bilingual speech-pathologists were the ideal professionals for assessing students who are bilingual, bicultural, and bidialectal, interpreters who were not trained in test protocol were often used because of the

limited availability of bilingual speech-language pathologists. Further, the use of interpreters in the absence of a bilingual speech-language pathologist facilitated the assessment process, which included communicating with students' parents. Moreover, not being proficient in a student's particular language left them unsure as to whether the untrained interpreter asked test questions without providing contextual clues.

Difficulty distinguishing a language difference from a language disorder. The final theme that emerged was respondents' difficulty with distinguishing a language difference from a language disorder in the students from diverse cultural and linguistic backgrounds who were referred to them. Four of 10 respondents reported that this was a challenge for them.

Limitations

Self-reported data from a very small population of respondents present limitations. The researcher's race/ethnicity as an African Caribbean American and background as a speech-language pathologist also presents limitations. Additionally, respondents may have provided responses they perceived to be the "correct answer" or "socially acceptable" responses (Onwuegbuzie, 2003).

Because research participants were limited to speech-language pathologists employed by only two Florida school districts, this was a threat to population validity and ecological validity (McMillan, 2000; Onwuegbuzie, 2003). It is possible that speech-language pathologists who reside in other areas of the state or elsewhere in the nation would report different perceptions of supports and barriers to assessing the language skills of students who are bilingual, bicultural, and bidialectal. Further, only female speech-language pathologists were selected to participate in the in-depth interviews. Thus, information gathered from this study may be only applicable to female speech-language pathologists in two targeted Florida school districts.

Finally, this researcher utilized an independent transcriptionist. Although instructed to record verbatim, the nuance of some responses may have been lost. This posed a threat to descriptive validity and interpretive validity (Maxwell, 1996).

DISCUSSION

Implications for Graduate Preparatory Programs

Based on the findings of this study, a major goal for graduate communication sciences and disorders programs should be to ensure that prospective speech-language pathologists are representative of the broad diversity of the American population. By actively recruiting and admitting individuals into graduate preparatory programs, who represent a rich variety of culturally and linguistically diverse backgrounds, the profession can be assured of having practitioners familiar with the cultural, social and linguistic variables that might affect communication assessment outcomes and treatments.

Diversity curricula should also engage preservice speech-language pathologists in self-assessment of how one's culture can influence clinical decision-making. Further, the curricula should be relevant and extensive, providing detailed information about the diverse groups represented in the American population. Preservice speech-language pathologists should be given ample opportunity to work with students and families from culturally and linguistically diverse backgrounds, while completing their clinical practica and internship experiences. Graduate preparatory programs should form partnerships with local school districts, and with other educational agencies, particularly in areas representative of a large number of culturally and linguistically diverse student learners.

Preparing future speech-language pathologists to provide culturally relevant services to students who are bilingual, bicultural, and bidialectal only can be accomplished through faculty who are knowledgeable in the areas of linguistic diversity, second language acquisition, and cultural variations in language and literacy development. Increasing the number of diverse scholars of color and those interested in multicultural issues will expand the knowledge base and assist graduate preparatory schools with this challenge. They must possess knowledge and skills in the above areas, derived from active research agendas. Currently, language tests written in languages other than Spanish are lacking. Most standardized tests have not included bilingual populations in their normative sampling (Banotai, 2004). One test was developed with African American Vernacular English speakers in mind. However, many others have only made accommodations for these dialectal variations.

Implications for ASHA

The American Speech-Language and Hearing Association (ASHA) has shown a definite desire to expand the knowledge base in this very important area. Through its Focused Initiatives, Multicultural Affairs Board, and Special Interest Division 14 – Communication Sciences and Disorders in Culturally and Linguistically Diverse Populations, ASHA is in the process of updating its guidelines as they relate to the assessment and therapeutic intervention of individuals who are culturally and/or linguistically diverse. Recommendations to ASHA include a bold proposal to lead state certification and licensing boards in requiring speech-language pathologists to dedicate a set number of credit hours and/or continuing education units toward assessment and treatment of individuals who are bilingual, bicultural, and bidialectal. As interview respondents commented, speech-language pathologists have been required to enroll in continuing education courses/trainings for annual HIV/AIDS updates, biannual CPR renewal, and annual medical errors updates, regardless of their work setting (i.e. hospital or school-based). Many suggested that the multicultural speech and language issues requirement would be as relevant.

ASHA may consider collaboration with CAA-accredited graduate preparation programs to outline standards for establishing proficiency in another language. Many pre-major undergraduate programs already have this requirement as part of the general

liberal arts curriculum. This requirement would become a regular part of the graduate curriculum and entail more than learning the rules of a language. In addition to listening, speaking, reading, and writing (in languages with a written component) proficiency in a language, speech-language pathologists would be immersed in the culture that is representative of the language they are learning. This requirement could be accomplished through field experiences and practicum assignments. Students would be encouraged and given the opportunity to learn other languages not traditionally taught, but often spoken by the culturally and linguistically diverse students on their caseloads (e.g., Creole, Tagalog, and Hindi). Further, their knowledge in the area of dialectal variations would be expanded via the opportunities to conduct comparative analyses across the dialects of the English language.

Cultural competence training would equip these professionals with knowledge necessary to provide appropriate services to children and youth who speak various dialects. Culturally competent educational professionals embrace their students' dialects as respected and viable means of communication while teaching them how to be successful in the dominant mainstream culture where standard mainstream English is spoken.

Implications for School District Level Supervisors

In order to meet the needs of this diverse clientele, school districts must ensure that their faculty is receiving the necessary resources to perform adequate services. Such resources must include:

- Actively recruiting (internationally and nationally) of bilingual/bicultural/bidialectal speech-language pathologists and educators to fill vacancy positions;
- Assisting immigrant speech-language pathologists with work visas;
- Providing more professional development workshops in this area that focus on specific issues of cultural diversity with real-life examples;
- Utilizing local and national consultants who are experts in multicultural issues;
- Providing current employees with extensive training to serve as lead clinicians in this area specifically; and
- Collaborating with nearby school districts to pool resources in this area ("borrow" bilingual, bicultural, and bidialectal speech-language pathologists, share the cost of bringing in consultants or interdistrict trainings).

Implications for Future Research

Future research might include a replication of the current study. Replicating the study with a larger population of interview respondents would confirm findings and add to a currently limited knowledge base in this area of research. Additionally, future research might need to focus on implementation of the above recommended practices to determine their effectiveness.

CONCLUSION

The findings from this study provide a rationale for the active recruitment of culturally and linguistically diverse speech-language pathologists and researchers focused on multicultural speech-language issues, clearer guidelines and protocol for providing services to culturally and linguistically diverse student learners, more practicum and internship experiences with these students, and preservice and inservice cultural competence training. Further, these findings support the need for further research in this area. Information gathered from subsequent studies will expand the current dialogue, adding to the knowledge base of supports and barriers to assessing the language skills of students who are bilingual, bicultural, and bidialectal.

As our nation's schools increasingly serve more culturally and linguistically diverse student learners, the need becomes greater to accommodate these differences in the current monocultural classrooms. The implication is that in order for teachers to be successful, they will need to be prepared to teach children who are from culturally and linguistically diverse backgrounds (Ladson-Billings, 1994). The same is assumed to be true for school-based speech-language pathologists.

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ECHO

READABILITY OF PATIENT EDUCATION MATERIALS IN THE FIELD OF COMMUNICATION SCIENCES AND DISORDERS

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ABSTRACT

This study assessed patient education materials to gauge their appropriateness for at- risk populations of low literacy English skills. These include persons with low education attainment, English language learners, the elderly, and persons with reading disabilities. Fifty-one brochures/fact sheets related to communication sciences and disorders disseminated by three different agencies were quantitatively analyzed using four readability formulas. Results showed a wide range of grade levels. Average grade level scores were 8.4 for American Speech Language and Hearing Association, 8.5 for American Academy of Audiology scores, and 9.3 for the National Institute on Deafness and Communication Disorders materials. It was concluded that the materials being disseminated may not be adequate for the audiences of concern in this study.

KEY WORDS: Readability levels, patient education materials, health literacy

ECHO

READABILITY OF PATIENT EDUCATION MATERIALS IN THE FIELD OF COMMUNICATION SCIENCES AND DISORDERS

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INTRODUCTION

Health literacy is "the ability to understand health information and to use that information to make good decisions about your health and medical care" or "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions." (U.S. Department of Health and Human Services, 2000). The American Medical Association states that poor health literacy is "a stronger predictor of a person's health than age, income, employment status, education level, and race" (Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, 1999). Without health literacy, individuals and communities may, for example, lack the skills to understand, prevent and manage diseases, or handle medications adequately.

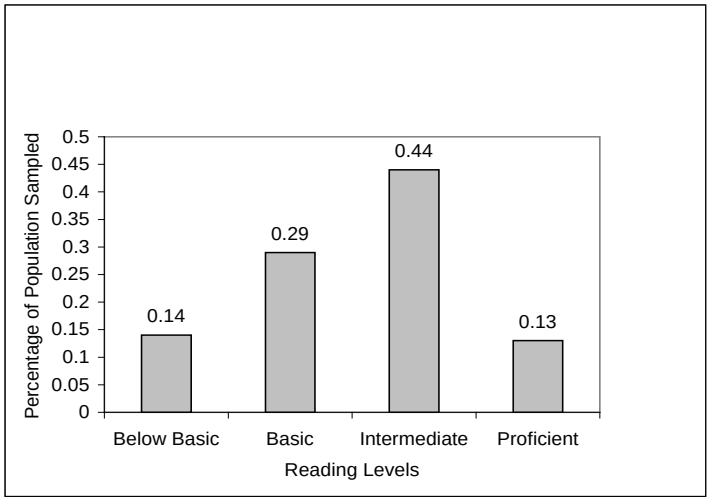
Prompted by Healthy People 2000-2010, numerous activities have addressed health disparities during the past several years. In tandem, Healthy People 2000-2010 also recognized the relationship between health literacy and health disparities (U.S. Department of Health and Human Services, 2000). It included an objective to increase opportunities for individuals to become health literate. This agenda is twofold: a) to develop appropriate written materials for audiences with limited literacy (including professional publications and federal documents), and, b) to increase reading skills of persons (U.S. Department of Health and Human Services. (2000).

With the intent of increasing health literacy, speech and language pathologists, and audiologists rely heavily on written materials to perform preventive, assessment, treatment, education and follow-up activities. They use these materials for a wide variety of purposes such as noise prevention education, obtaining case histories, and disseminating information and training to families of stroke patients. Therefore, it is incumbent upon practitioners to become aware of the challenges posed with written materials when trying to increase health literacy with specific populations. In particular, attention must be placed when preparing and disseminating information to persons at risk of low literacy due to a) lack of educational attainments and/or language experiences such as minorities, the elderly, and English learners, and b) persons with developmental or acquired disorders, such as those with reading disabilities. The present study addresses the needs of the first group (i.e., minorities, the elderly, English learners).

Literacy Problems

The National Assessment of Adult Literacy Survey (NALS) (US Department of Education, 2003) reported close to 93 million (42%) adults in the U.S. with literacy skills assessed as basic (4.0-5.9 grade level) or below basic (2.0- 3.9 grade level) (Figure 1).

FIGURE 1. National Assessment of Adult Literacy 2003 Reading Levels



They can either read no more than the most simple and concrete items or can perform simple and everyday literacy activities. More than half of the adults with below basic skills did not graduate from high school (USDOE, 2003). This estimate does not include the 11 million identified as non-literate (0-1.9 grade level). Their literacy skills are none or minimal and they also have no or very little schooling. Furthermore, the ability to read does not necessarily correlate with grade level attainment; it may actually be three to five grades below their reported grade level (Lee, 1999). NALS lists as at- risk of being basic or below basic readers the following: persons with no English spoken before starting school, Hispanic adults, black adults, age 65 or older and those with multiple disabilities. Additionally, the U.S. Department of Health and Human Services (2000) stated that limited health literacy affects older adults, minority populations, the poor and the medically underserved.

Reading

There are two aspects, which are vital to defining the effectiveness of written material. First is the individual's ability to read, and second is the presentation of the text itself, or its readability. Regarding individual reading abilities, the "Simple View of Reading" (Gough & Turnmer, 1986; Hoover & Gough, 1990) proposes two reading components – decoding and linguistic comprehension. Simply stated, decoding refers to word recognition whereas comprehension entails interpretation. While both are necessary for reading, decoding skills are paramount to achieving comprehension successfully, they are the basic blocks. Parallel to reader processes, is readability, a measure of how text helps readers to decode and comprehend. For Horner, Surratt and Juliusson (2000), readability may also depend on a) ease of reading –headings and font type; b) content – terminology, direct language, short ideas; c) comprehension – definition of terms, illustrations, examples; and d) reading level.

Readability of Materials

Readability (and comprehensibility) of materials depend on two critical variables: surface characteristics and deep characteristics. The first variable, and main thrust of this research, are the surface characteristics which include the number of words, length of sentences and number of syllables in words. There are about 200 formulas used to gauge surface structures (these will be described later). The second variable, deep characteristics, include a) the reader's cognitive aptitudes and, b) the cohesion and coherence of text. The former addresses the "interactive" process of reading with background knowledge, understanding of passive sentences and working memory playing major roles in understanding text (The University of Memphis Institute of Education Sciences, http://cohmetrix.memphis.edu/cohmetrixpr/readability.html; Catts & Kahmi, 2005. Deep structure cohesion and coherence characteristics are more text bound (Essem Educational, 2008). Cohesion and coherence address the interconnectiveness in the text that is signaled by grammatical and lexical items as well as by concepts and relations. The challenge for developers of these materials is to offer the important information while manipulating these variables. For example, one way to reduce readability levels is to reduce the language complexity, but this tactic may run the risk of misleading readers by oversimplifying concepts.

Readability Measures

Readability measures or reading levels are the most popular, and have been used to gauge reading levels to identify the effectiveness of health materials. Studies have concluded that health materials for patients, significant others and interested parties tend to be written at high reading levels. For example, Albright, et al (1996) studied education materials in four medical center units (oncology, surgery, cardiac, perinatal) and house-wide (diabetes) and concluded that they required a 10th grade reading level or higher. Pediatric literature for parents was found by Davis and Mayeaux (1994) and Klingbell, Speece and Schubiner (1995) to also average at a 10th grade level. Forbis and Aligne (2002) gauged the readability levels of written asthma management plans and found them to average at the 8th grade level. Similar results have been noted when gauging materials from the fields of nursing, neurology, dentistry, HIV prevention, and oncology to name a few (Cooley, et al, 1995; Mumford, 1997; Murphy et al, 2001; Newton, 1995; Singh, 2003; Wagner & Girasek, 2006; Wells, 1994).

While other health professions have done numerous studies on the subject, there are only three recent studies in the field of communication sciences and disorders. Kahn and Pannbacker (2000) evaluated thirty educational materials for clients with cleft lip/palate and their families and reported that most documents were written at or above the high school level. Kelly (1996), and Kelly and Kahn (1991) looked at 109 brochures and 125 clinical forms related to audiology and also concluded that grade estimates were barriers for patients at risk of low literacy to understand the information. To date, no other studies have evaluated materials specifically for consumers/patients from other speech and language pathology specialty areas (i.e. dysphagia, phonology, reading, etc). Consequently, this begs two questions: a) Are the readability estimates in these studies a reflection of only some specialty areas (i.e. audiology), or throughout all areas?, and b) Do the materials assessed in this study address Healthy People 2000-2010 health literacy objectives?

PURPOSE

Many health education efforts in the area of communication sciences and disorders are carried out, apart from verbal communication, via print. The print media offer knowledge about the nature of disorders, characteristics, best practices as well as recommendations. Previous studies in the field of communication sciences and disorders reported high reading levels; nevertheless, the materials analyzed were only specific to two specialty areas. The purpose of this study was to examine the readability level of reading materials offered for patient

education inclusive of more specialty areas. Examining these materials helps to determine how appropriate they are for educating clients, parents and/or significant others with different levels of reading skills. In particular, it is of interest to find out if the materials can be used with populations of persons recognized as at risk by Healthy People 2000-2010.

The primary goal of this study was to investigate whether or not material disseminated for health education purposes in the area of speech and language pathology and audiology are appropriate for low literate populations. Low literate at risk populations tend to be minority populations, English language learners, the elderly, and persons with reading disabilities (U.S. Department of Health and Human Services, 2000). Their low literacy skills put them at risk health wise. For example, they may not become aware of noise effects on hearing, the importance of newborn hearing screenings, how to identify stroke signs, what are characteristics of disorders in children, etc. The results of this study expands on Kahn and Pannbacker's (2000), and Kelly (1996) and Kelly & Kahn's (1991) studies of cleft lip/palate and audiology materials to include a wider range of topics to determine if findings are comparable. Additionally, the results will offer clinicians the opportunity to decide if brochures and factsheets tested may be used with low literate populations.

METHOD

Print Material

Fifty-one brochures/fact sheets were evaluated from the three main agencies that educate the public regarding speech, language, and hearing, and related disorders: The National Institute on Deafness and Other Communication Disorders (NIDCD), the American Speech-Language Hearing Association (ASHA), and the American Academy of Audiology (AAA). The 27 ASHA and 6 AAA brochures were obtained by calling the organizations and requesting a packet of the sampling brochures they send to the general public. Both ASHA and AAA materials were identified as appropriate for "consumers" or "patients" respectively. The 18 NIDCD fact sheets were requested via their website (www.nidcd.gov/order/pubs_title.asp). Thise investigator visited the NIDCD website, identified, and ordered the fact sheets which related to the professions. The documents included a diversity of topics, such as normal development, speech and language disorders, hearing disorders, and reading, among others. (See appendices A and B for a complete listing of materials and agencies.) Fifty-three percent (n=27) of the documents addressed speech and/or language themes and thirty-three percent (n=17) addressed hearing themes. The remaining fourteen percentrest 14% (n=7) addressed generic topics about and/or related to communication sciences and disorders such as reading difficulties. Most ASHA and AAA documents included pictures and bulleted information in three panel/two sided formats. Most NIDCD fact sheets presented information in two-page, 8 x 10 two sided documents containing narratives in paragraphs. The majority of NIDCD factsheets did not contain bulleted information or pictures.

ANALYSIS

The Readability Calculations (version 6.1) (Micropower & Light Co., n.d.) software was used to assess readability levels of the material. This program contains readability formulas that purport to offer an objective method to measure readability, and accordingly, predict difficulty of reading materials. As previously mentioned, readability formulas are measures of surface characteristics. Essentially, they gauge readability levels through regression formulas that account for the number of words in a sample, sentence length, and number of syllables in words. They may also use word frequency lists as well as word complexity. The use of readability formulas in isolation, without considering the dynamic nature of reading described above must be done with caution because problems have been associated with these formulas (Redish &Selzer, 1985). Critics state that a) there is insufficient research supporting their use in technical and business writing, b) they have low predictability with adult materials, c) shortening words and sentences do not necessarily facilitate understanding, d) they do not respond to of how people process information, and e) they fail to account for important features that help with understanding and use of materials. Similar points have also been presented by others such as Bruce, Rubin and Starr (1981) and the Center for Plain English (2010).

In this study, four popular reading formulas were used. These are the FOG (e.g., full of complexity as in a fog) , the SMOG (Simple Measure of Gobbledygook), the FLESCH Grade, and the FLESCH Reading Ease (Readability Formulas. Com, 2010). The formulas are used in studies such as those previously referred to. For example, in their examination of materials related to communication sciences and disorders Kelly and Kahn (1991) used the FOG and the Fry formulas, Kahn and Pannbacker (2000) used the SMOG and the Fry, and Kelly (1996) used the FOG and the Fry formulas (Fry, 1977). They are also used by school systems, private and public agencies as well as publishers to determine grade levels of their materials. The SMOG, FOG and the FLESCH Reading Ease are among the 9 recommended methods for educational materials and the 9 recommended methods for publishing; the FOG and FLESCH Reading Ease are among the 7 recommended methods for health care materials; and finally, the FLESCH Reading Ease and FLESCH Grade are among the 5 recommended for government agencies (Scott, n.d.).

The fact that each formula comprises different variables, readability scores may vary. Settings have the option of identifying or determining which variables to measure based on their specific needs. Furthermore, obtaining several scores will offer the evaluator the opportunity to realize the dynamic nature of readability scores. Three of the formulas report grade levels in years and months, and one reports degree of difficulty in terms of educational level.

a) The FOG formula (Gunning, 1952) accounts for the total number of words, words of three or more syllables, and sentences. The mathematical formula is: Grade Level = 0.4 (ASL + PHW),

where, ASL = Average Sentence Length (i.e., number of words divided by the number of sentences), and PHW = Percentage of Hard Words (3+ syllable words divided by 100 words (length of text)).
b) The SMOG (McLaughlin, 1969) uses words containing three or more syllables. The mathematical formula is the following: Grade Level = 3 + Square Root of Polysyllable Count (words with three syllables or more).
c) The Flesch Reading Ease Formula (Flesch, 1948), used by many federal and state agencies, considers the number of words, syllables and sentences in adult reading material. The specific mathematical formula is Reading Ease = 206.835 – (1.015 x ASL) – (84.6 x ASW), where, ASL = Average Sentence Length (i.e., the number of words divided by the number of sentences), and ASW = Average number of syllables per word (i.e., the number of syllables divided by the number of words. The higher the score the easier to read is the text (see Table 1).

TABLE 1. Flesch Reading Ease Scoring Equivalents

Score	Grade Level	Style
0 - 29	College	Very Difficult
30 - 49	High School or Some College	Difficult
50 - 59	Some High School	Fairly Difficult
60 - 69	Seventh/Eighth Grades	Standard
70 - 79	Sixth Grade	Fairly Easy
80 - 89	Fifth Grade	Easy
90 - 100	Fourth Grade	Very Easy

d) The Flesch Grade Level (Flesch-Kincaid) Formula (Farr, Jenkins and Patterson, 1951) is for upper elementary and secondary materials. It uses the number of words, syllables and sentences. The specific mathematical formula is: Grade Level = (0.39 x ASL) + (11.8 x ASW) - 15.59, where, ASL = Average Sentence Length (i.e., the number of words divided by the number of sentences), and ASW = Average number of Syllable per Word (i.e., the number of syllables divided by the number of words).

Fifty-one brochures were scanned and converted into a text file following the instructions of the instrument used. Brochure lengths ranged from 394 words to 1876 words, with an average of 848 words. The intent of the original formats of bullets and lists of ideas was respected. That is, bullets are used to make the readability level easier. When reformatting for the analysis, each bullet was considered an individual unit and, therefore, received a period converting it into a short sentence. Titles and subtitles are also used to facilitate understanding, and were similarly treated and given periods. Lists of references, and identifying information such as addresses, and lists of associations and professionals were deleted since they were considered separate from the content.

RESULTS

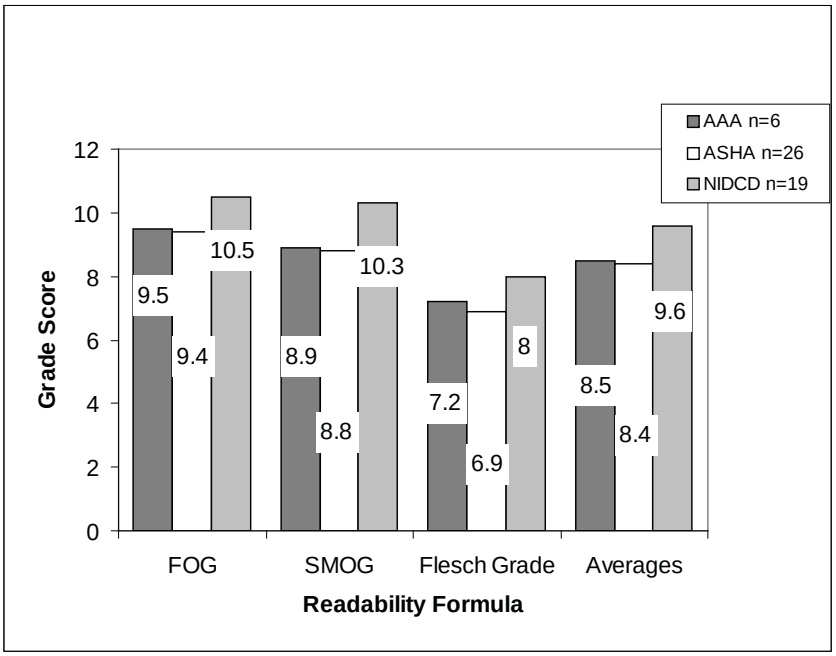
The results of the FOG, SMOG, Flesch Grade level and Flesch Reading Ease analysis for each of the brochures/factsheets are contained in Appendix A. The average reading scores for each of the formulas was as follows: FOG = 10.3 (range 4.9 to 20.5), SMOG = 9.8 (range 6.8 to 16.8), Flesch Grade level = 7.9 (range 3.1 to 17.6), and Flesch Grade Ease = 55.0/Grades 10-12 (range 82.0/grade 6.0 to 12.0/college graduate). As seen on Table 2, the FOG scores gauged the materials at a higher level than the other two formulas, while the FLESCH Grade scores were the lowest reported scores (see Table 2). Finally, the overall average scores (FOG, SMOG and Flesch Grade Level) obtained was a 9.3 grade, with a mode of 7.2 grade.

TABLE 2. Readability Grade Levels by Reading Formula (N=51)

Formula	Mean	Mode	Standard Deviation
FOG	10.3	9	2.95
SMOG	9.8	9.1	1.98
FLESCH Grade	7.9	6.1	2.66
Overall	9.3	7.2	2.5

The FOG, SMOG and FLESCH Grade scores were compared by source (see Figure 2).

Figure 2. Grade Level Averages for Each Readability Formula by Source (N=51)



It is noted that NIDCD scores for all formulas was the highest, while AAA and ASHA brochures average scores were comparable. Using three formulas (FOG, SMOG, and Flesch Grade Level), averages were obtained for the materials by the publishing source (see Table 3).

TABLE 3. Average SMOG, FOG, Flesch Grade Readability Scores, Ranges and Modes by source

Source	n	Mean	Grade Ranges	Modes		
				FOG	SMOG	Flesch Grade
AAA	6	8.5	6.2 - 10.8	N/A	8.9	N/A
ASHA	26	8.4	5.5 - 10.4	9	7.4	6.7
NIDCD	19	9.6	5.0 - 12.8	7.4	7.8	6.1

Note. AAA = American Academy of Audiologists. ASHA = American Speech Language Hearing Association. NICDC=National Institutes for Deafness and Communication Disorders.

AAA materials averaged at the 8.5 grade level, spanning between grades 6.2 to 10.8. ASHA brochures averaged at the 8.4 grade and spanned between grades 5.5 and 10.4, with 9 brochures rating at the 9th grade level. NIDCD brochures averaged at the 9.6 grade and included grades from 5.0 to 12.8. There were five items at the 5th grade and five items at the 11th grade levels. Finally, the most common reading level (mode) for all items gauged was grade 9.

The average FLESCH Reading Ease Scores by Source is presented in Table 4.

TABLE 4. Average Flesch Reading Ease Scores, Ranges, and Modes by Source

Source	n	Averages	Grade Equivalent	Degree of Difficulty	Ranges	Modes (Grades)
AAA	6	52.0	Some High School	Fairly Difficult	45.0 - 69.0	7/8th (2)*, Some HS (2)
ASHA	26	53.0	Some High School	Fairly Difficult	12.0 - 82.0	Some HS (10), HS/Some College (6)
NIDCD	19	59.0	Some High School	Fairly Difficult	39.0 - 80.0	Some HS (5), 7/8th (4), 6th (4)

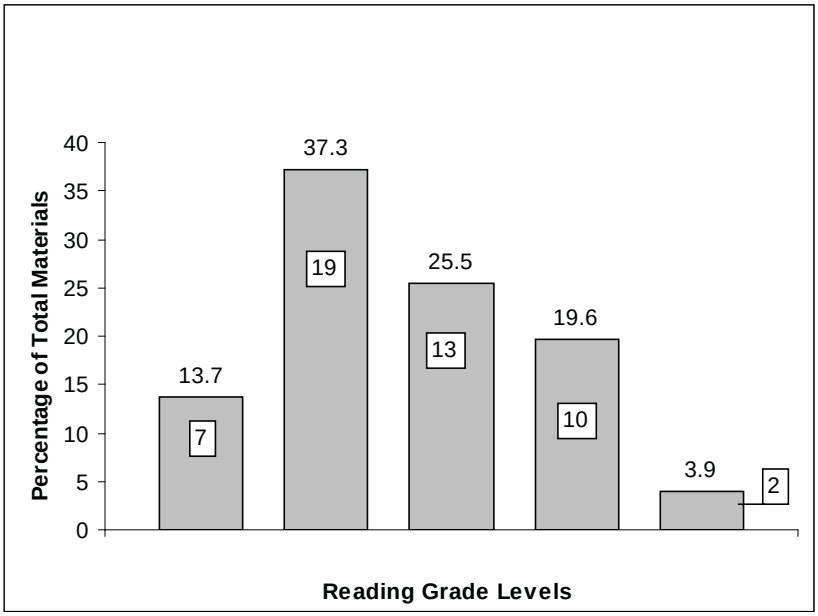
Note. AAA = American Academy of Audiologists. ASHA = American Speech, Language, Hearing Association.

NICDC=National Institutes for Deafness and Communication Disorders. * Number of occurrences in parenthesis

The materials averaged at the Some High School level, making the materials fairly difficult. Over one third of all brochures were found to be at the “some high school” level, followed by almost a fourth being at the :”high school/some college” level. ASHA presented the largest range (12.0 – 82.0). That is, their materials were deemed to range between “very difficult” (college) to “easy” (5th grade).

Finally, the distribution of materials (see Figure 3) proves that 13.7% tested between the fourth and sixth grade levels, 37.3% tested at the seventh to eighth grade level, 25.5% were tested at the 9th to 10th grade level, 19% were graded at the 11th to 12th grade level, and 3.9% scored at the 13+ level.

Figure 3. Distribution of Materials by Grade Reading Levels (N=51)



DISCUSSION

When addressing prevention, assessment and treatment activities, speech and language pathologists and audiologists, as well as other health practitioners in health and education settings rely on printed materials such as brochures, handouts, and factsheets. Professionals frequently share written information with patients about the nature of their problems, as well as follow up treatment expectations and procedures. More often than not, it is taken for granted that persons receiving these materials can read them to access information to improve their health literacy, and therefore, increase health outcomes for them and community members. However, there must be a consideration that almost half of the adult population in the US have reading skills at the below basic/basic levels (US Department of Education, 2003), and a large population are non-literates. This population is one that cannot read, can either read no more than the most simple and concrete items or can perform simple and everyday literacy activities. Their reading grade levels range from 0 to 5.9 years. Thus, the health goals of print materials for this population may not be accomplished. In response, Healthy People 2000-2010 has made health literacy a priority. The situation is critical for settings and professionals treating large populations that are at greater risk for low reading skills.

As part of the assessment of readability of materials, this study measured the adequacy of materials for at risk populations by looking at surface structures. Using readability formulas frequently employed by private and public agencies (SMOG, FOG, Flesch Reading Ease, Flesch Grade Level), the readability or grade levels of the materials in this study were obtained. The grade levels were based on different regression formulas that use a combination of number of words, sentence length, and/or number of syllables in words. These regression analysis tools, in combination, proved to be practical tools in assessing the levels of the materials.

The findings of this study, in concert with findings of studies in a myriad of health fields, suggest that the printed information about communication sciences and disorders distributed for the education of parents and significant others (such as parents, spouses, caretakers) may not serve their purported purpose with populations at risk of low health literacy. Prior studies in the field of communication sciences and disorders reported similar findings for materials related to cleft lip/palate (Kahn & Pannbacker, 2000) and audiology (Kelly, 1996; Kelly & Kahn, 1991). Two questions were posed in this study; a) Are the readability estimates in these studies a reflection of only some specialty areas (i.e. audiology), or throughout all areas?, and b) Do the materials assessed in this study address Healthy People 2000-2010 health literacy objectives? In response to the first question it was found that the results from prior studies may not necessarily be a reflection of specialty areas due to the use of specialized terminology or phrasing. Other specialty areas were gauged in this study and results were comparable - most materials in this study require upper level reading skills. In response to the second question, it appears that in average, the brochures would not be beneficial for persons at risk of low reading skills. Thirteen percent (n=7) of the materials fell between the fourth and sixth grade levels, and may probably be appropriate - solely based on readability levels and not other variables - for basic level readers. The rest are not appropriate and therefore do need to be revisited in order to address Healthy People 2000-2010 health literacy objectives.

As previously noted, each of the formulas presented a different reading score. FOG and Flesch Reading Ease scores appeared higher and Flesch Grade Level scores appeared lower. Consequently, it would be advantageous to simultaneously use different tools when gauging materials in order to obtain grade ranges rather than static scores.

Generalization of these findings should be done with caution. Readability formulas, because of their focus on surface structures, obviously come with limitations. First and foremost, they do not account for the interactive nature of reading, where comprehension relies on deep characteristics such as the patient's individual characteristics (knowledge, cognitive and language skills) and others such as motivation, interest and time allotted for reading. Furthermore, as noted by Horner, Surratt & Juliusson (2000), comprehension of text is facilitated by cultural appropriateness of materials as well as typographical and visual elements.

Because of the limited types of printed materials analyzed, it is not the conclusion of this study that all or most of the materials generated by the agencies may not serve to educate those populations that are low-literate. It has also been shown that outcomes vary based on the readability formula used due to the nature of the formulas that comprise them. Similarly, it may be understood that if other assessment methods are used, there may also be more variability not noted in this study.

A thought on this issue and overreaching implications would be that service providers and agencies producing materials have a responsibility to assure that the materials they disseminate accomplish their health literacy goals. While readability formulas come with inherent problems because their regression formulas use different variables and mathematical procedures, they may serve as tools to guide in the development of print materials or to select materials in accordance to the profile of patients served. These formulas offer developers the opportunity to improve their products. In fact, D'Alessandro, Kingsley and Johnson-West (2001) offer an excellent suggestion when they propose that all materials should note their readability levels (they used Flesch Reading Ease in their study). There is also a plethora of recommendations in the health education and nursing literature to improve the readability of print information. These include the use of: simple words and sentences, pictures, bulleted information, explanation of terminology, blank space, culturally appropriate themes, and reduced information. In addition, professionals and agencies may develop modified summary handouts which simplify the content by reducing specialized

terminology and help readers further understand the materials disseminated. With the use of the internet, more information is readily available to the public. Nevertheless, two issues have become apparent in this regard. First and foremost, there exists the digital divide which is characterized by lower income, less educated, and minorities at a disadvantage (Gant, Miller, Lee Ying & Li, 2010). Second, it has also been demonstrated that the information available in the internet is presented at higher reading levels and is difficult to access (Berland, Elliott, et al, 2001; Clyne & Haynes, 2010). Another option that has been used historically for health education of low literate populations are photonovelas - comic-book style materials with pictures containing dialogue bubbles. Examples may be found in www.myhealthstories.com. The site contains "Talking Photonovelas©" which are photonovelas with voiceovers that tell stories about communication sciences and disorders and are suitable for non-literates (Dixon, & Martinez, 2008; Martinez, 2008, Martinez, & Lyons, 2004; Martinez, Smith & Ellie, 2004).

Finally, it should be noted that performing assessments using readability formulas is a good first step to gauging appropriateness of materials, but be mindful that they only address surface characteristics. Most importantly, when agencies develop materials they should strive to test the deep characteristics of materials to assure their health literacy goals are being met. Service providers, and school and clinical settings should make efforts to ascertain the readability levels of their patients and significant others by gauging their reading skills, comparable to the Louisiana State University Medical Center's study of outpatient/patient parent reading skills (Davis & Mayeaux, 1994).

In summary, health literacy of our consumers should be at the forefront of professional practices in all activities performed. Enhancing our communication with them will impact their communication skills, and the communication skills of populations at large.

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APPENDIX A

Readability Scores of Education Materials of Three Major Sources in the Field of Communication Sciences and Disorders.

Title	Source	Readability Formula					
		FOG	SMOG	FLESCH GRADE	Average Scores	FLESCH	EASE (grade)
Accent Modification	ASHA	6.9	7.4	4.7	6.3	70.0	8-9
Adult Aphasia	ASHA	14.0	13.1	11.6	12.9	42.0	coll yrs
Adult Aphasia: Recent Research	NIDCD	12.8	11.0	10.0	11.3	39.0	coll yrs
Aphasia	NIDCD	12.1	10.4	9.3	10.6	42.0	coll yrs
Apraxia of Speech: Quick Facts	NIDCD	11.5	10.5	8.7	10.2	50.0	10-12
Assistive Listening Devices	ASHA	9.4	9.0	6.7	8.4	59.0	10-12
Audiologists: Hear for a Lifetime	ASHA	9.0	8.2	6.7	8.0	56.0	10-12
Auditory Processing Disorder in Children: What Does it Mean?	NIDCD	13.1	10.9	9.5	11.2	40.0	coll yrs
Autism and Communication	NIDCD	12.9	11.2	10.1	11.4	39.0	coll yrs
Balance Disorders	NIDCD	12.0	10.7	8.8	10.5	47.0	coll yrs
Balance, Dizziness and You	NIDCD	7.2	8.0	4.5	6.6	76.0	7
Child Language	ASHA	8.0	8.1	5.5	7.2	67.0	8-9
Cochlear Implants	ASHA	9.7	10.2	7.9	9.3	60.0	10-12
Cochlear Implants	NIDCD	8.6	9.1	7.1	8.3	57.0	10-12
Communication for a Lifetime	ASHA	9.1	7.9	7.2	8.1	51.0	10-12
Ear Infections	NIDCD	6.8	7.8	3.7	6.1	80.0	6
Ear Infections and Language Development	ASHA	11.3	11.0	7.3	9.9	68.0	8-9
Feeding and Swallowing Problems in Children	ASHA	12.9	11.4	10.0	11.4	41.0	coll yrs
Getting Ready for Reading and Writing	ASHA	4.9	6.8	3.1	4.9	82.0	6
Has Your Baby's Hearing been Screened?	NIDCD	7.4	8.1	6.1	7.2	68.0	8-9
Hearing Aids	NIDCD	9.0	8.9	6.8	8.2	59.0	10-12
Hearing Aids and Audiology Services	ASHA	9.9	9.7	7.1	8.9	59.0	10-12
HeaRing Loss and Older Adults	NIDCD	6.9	7.8	4.8	6.5	76.0	7
HIV-AIDS -Related Hearing Loss	AAA	10.8	9.4	8.5	9.6	45.0	coll yrs
How Does Your Child Hear and Talk?	ASHA	7.7	8.5	6.1	7.4	64.0	8-9
How's Your Hearing? Ask an Audiologist!	AAA	10.5	9.7	8.3	9.5	50.0	10-12
Learning Two Languages	ASHA	6.7	7.6	4.4	6.2	77.0	7
Literacy and Communication	ASHA	7.8	7.4	6.4	7.2	56.0	10-12
Newborn Hearing Screening	AAA	8.5	8.9	6.1	7.8	67.0	8-9
New-Born Hearing Screening	ASHA	9.6	9.1	7.3	8.7	55.0	10-12
Noise	ASHA	9.0	8.6	7.2	8.3	54.0	10-12
Noise-Induced Hearing Loss	NIDCD	9.6	9.7	7.0	8.8	61.0	8-9
Otitis Media	NIDCD	10.9	10.1	7.7	9.6	55.0	10-12
Preventing Hearing Loss and Tinnitus	ASHA	18.6	16.0	16.0	16.9	12.0	coll grad

APPENDIX A (continued)

Readability Scores of Education Materials of Three Major Sources in the Field of Communication Sciences and Disorders.

Title	Source	Readability Formula					
		FOG	SMOG	FLESCH GRADE	Average Scores	FLESCH	EASE (grade)
Preventing Speech and Language Disorders	ASHA	20.5	16.8	17.6	18.3	26.0	coll grad
Silence Isn't Always Golden	NIDCD	5.7	7.2	4.3	5.7	76.0	7
Speech Sound Disorders	ASHA	12.2	11.7	9.1	11.0	55.0	10-12
Speech, Language, Audiology Services: Are You Covered	ASHA	11.5	10.0	8.8	10.1	45.0	coll yrs
Speech-Language Pathologists	ASHA	11.8	9.1	8.6	9.8	42.0	coll yrs
Stuttering	ASHA	13.3	12.6	10.3	12.1	51.0	10-12
Swallowing Problems in Adults	ASHA	12.4	11.5	9.6	11.2	48.0	coll yrs
The Noise in Your Ears	NIDCD	7.9	8.7	6.5	7.7	70.0	8-9
The Speech-Language Pathologist in Your Child's School	ASHA	10.7	8.7	8.4	9.3	43.0	coll yrs
Tinnitus	ASHA	13.8	10.2	10.4	11.5	31.0	coll yrs
Tinnitus	AAA	12.5	11.6	9.2	11.1	50.0	coll yrs
Voice Disorders	ASHA	11.9	11.5	9	10.8	55.0	coll yrs
What are the Communication Considerations for parents of Deaf and Hard-of-Hearing Children?	NIDCD	7.9	8.6	6.1	7.5	64.0	8-9
What is an Audiologist?	AAA	12.2	9.8	10.3	10.8	32.0	coll yrs
What to do if Your Baby's Screening Reveals a Possible Hearing Problem	NIDCD	9.7	9.6	7.4	8.9	58.0	10-12
Your Baby's Hearing.	AAA	8.3	8.9	6.5	7.9	69.0	8-9
Presbycusis	NIDCD	8.9	9.0	6.2	8.0	64.0	8-9
Average Scores		10.3	9.8	7.9	9.3	55.0	10-12

Note. AAA = American Academy of Audiologists.ASHA = American Speech Language Hearing Association. NICDC=National Instittutes on Deafness and Communication Disooders.

Appendix B

References to Materials Analyzed

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